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PENSOFT

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A new species of *Chalepides* Casey, 1915 (Scarabaeidae, Dynastinae, Cyclocephalini) from the Pantanal of Brazil

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Abstract

Chalepides pantanalensis Ratcliffe & Seidel is described as a new species from the Pantanal region in Brazil. A description, diagnosis for distinguishing the species, illustrations, and a distribution map are provided. The new species is morphologically compared with *C. howdenorum* Joly & Escalona and *C. osunai* Joly & Escalona.

Key Words

Coleoptera, scarab beetle, semi-aquatic, South America, taxonomy

Introduction

The genus *Chalepides* Casey consists of 14 species distributed in South America with one species in the West Indies (Joly and Escalona 2002; Ratcliffe and Cave 2015). *Chalepides* species are recognized by a usually prolonged prepygidium with a concomitant shortening of the pygidium; presence of long, dense, tawny setae on the prepygidium that are exposed beyond the elytral apices; antenna with ten antennomeres and the club subequal in length to antennomeres 2–7; clypeus subtrapezoidal; frontoclypeal suture slender, arcuate; pronotum lacking a basal bead; and large claw of the male protarsus entire at its apex, not split.

The new species described here is from the Pantanal region of Brazil, and only *Chalepides barbatus argentinus* Prell has been reported from this area (Joly and Escalona 2002). Some *Chalepides* species are closely associated with submerged or partially submerged plants. Even their body shape is similar to that of many aquatic scavenger beetles (Hydrophilidae: Hydrophilinae). The Pantanal region (straddling Brazil's border with Bolivia and Paraguay) is one of the world's largest freshwater wetland ecosystem and prime habitat for *Chalepides* species with semi-aquatic habits. Silvera Guido (1965) suggested that *C. barbatus argentinus* may attack the water hyacinth, *Eichhornia crassipes* [Mart.] Solms [*Pontederiaceae*], in Uruguay. Valla and Cirini (1972) observed a *Chalepides* species in the water lily, *Victoria cruziana* D'Orbigny (Nymphaeaceae), in Corrientes Province, Argentina. Endrödi (1973) reported *C. luridus* (Burmeister) and *C. alliaceus* (Burmeister) collected on riverbanks. Martínez (1977) collected adults of *C. barbatus argentinus* Prell and *C. luridus* in the submerged axillae of *Pistia stratiotes* Linneaus (Araceae) and other submerged aquatic plants in the provinces of Chaco, Corrientes, Formosa, and Santa Fé in the Argentinian subtropical region.

Materials and methods

For our species delineation, we adhere to the phylogenetic species concept as outlined by Wheeler and Platnick (2000). This concept defines species as the smallest aggregation of populations diagnosable by a unique combination of character states. Not all species are equally

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diagnosable; some are easily recognized by examining one or a few individuals with a unique set of characters (*e.g.*, the new species described herein).

Specimen label data are quoted verbatim. A forward slash line (/) is used to separate lines on a label, and a double slash line (//) indicates the separation between two labels.

Results and discussion

Superfamily Scarabaeoidea Latreille, 1802
Family Scarabaeidae Latreille, 1802
Subfamily Dynastinae MacLeay, 1819
Tribe Cyclocephalini Laporte, 1840
Genus *Chalepides* Casey, 1915

***Chalepides pantanalensis* Ratcliffe & Seidel, sp. nov.**

http://zoobank.org/E10AAAD8-94EE-4A7B-8DAC-94BB1BDA9427

Figs 1, 2, 4, 5

Type material. Holotype male labeled "BRAZIL/ Pantanal-Fazenda/ Natureza 4.-8.11.2005/ lgt. Z. Tüdös" and with our red holotype label. **Allotype** female labeled "Brazil, Pantanal/ Fazenda 4 cantos, 7.-10.5.2012/ 18°36'54.40"S, 56°15'56.97"W/ lgt. O. Konvicka" and with our red allotype label. One male and three female **paratypes** with same data as holotype and each with our yellow paratype label. Two male **paratypes** with same data as allotype and each with our yellow paratype label. Holotype deposited at the Zoological Museum (**ZMH**), Centrum für Naturkunde, Universität Hamburg, Hamburg, Germany. Allotype and one male paratype deposited at the University of Nebraska State Museum (**UNSM**), Lincoln, NE, USA; one male paratype deposited in the Matthias Seidel Collection (**MSPC**), Hamburg, Germany; and one male and three female paratypes deposited in the Ondřej Konvička Collection, Zlín, Czechia (**OKPC**).

Diagnosis. *Chalepides pantanalensis* will key to couplet 11 in Endrödi (1985) which ends with *C. comes* Prell (Venezuela, Colombia, Brazil) where the character states do not match: degree of punctation of pronotum versus frons, pygidial sculpturing, and form of the parameres. In Joly and Escalona (2002), it will key to couplet 8 for *C. osunai* Joly & Escalona (Venezuela) and *C. howdenorum* Joly & Escalona (northern Bolivia), the only *Chalepides* species with a bulbous and rounded apex of the parameres (as in *C. pantanalensis*). *Chalepides pantanalensis* has some character states seen in both of these species. The parameres are nearly identical to those of *C. howdenorum*, but the male of *C. pantanalensis* has a tooth on the venter of protarsomere 5 (absent in *C. howdenorum*, Fig. 3) and the larger protarsal claw is short and thick in *C. pantanalensis* (narrowly elongate in *C. howdenorum*) (compare Figs 2 and 3).

The male of *C. pantanalensis* shares with *C. osunai* a tooth on the venter of protarsomere 5 and a larger short, thick protarsal claw, but *C. pantanalensis* has a greenish

Figure 1. Holotype, dorsal view, of *Chalepides pantanalensis* Ratcliffe & Seidel, sp. nov.

Figures 2, 3. Male protarsal large claw of **(2)** *C. pantanalensis* Ratcliffe & Seidel, sp. nov. and **(3)** *C. howdenorum* Joly & Escalona.

sheen (absent in *C. osunai*), a densely punctate clypeus (sparsely punctate in *C. osunai*), and shorter, suboval parameres (elongate in *C. osunai*).

Description of holotype (Fig 1). Male. Length 16.7 mm; width 6.9 mm. Color black with faint olive-green sheen. **Head:** Frons with small, moderately dense, ocellate punctures. Clypeus with small, dense, ocellate punctures; apex broadly, shallowly emarginate, slightly reflexed. Frontal suture arcuate, complete.

Figure 4. Parameres, caudal and lateral views, of *Chalepides pantanalensis* Ratcliffe & Seidel, sp. nov.

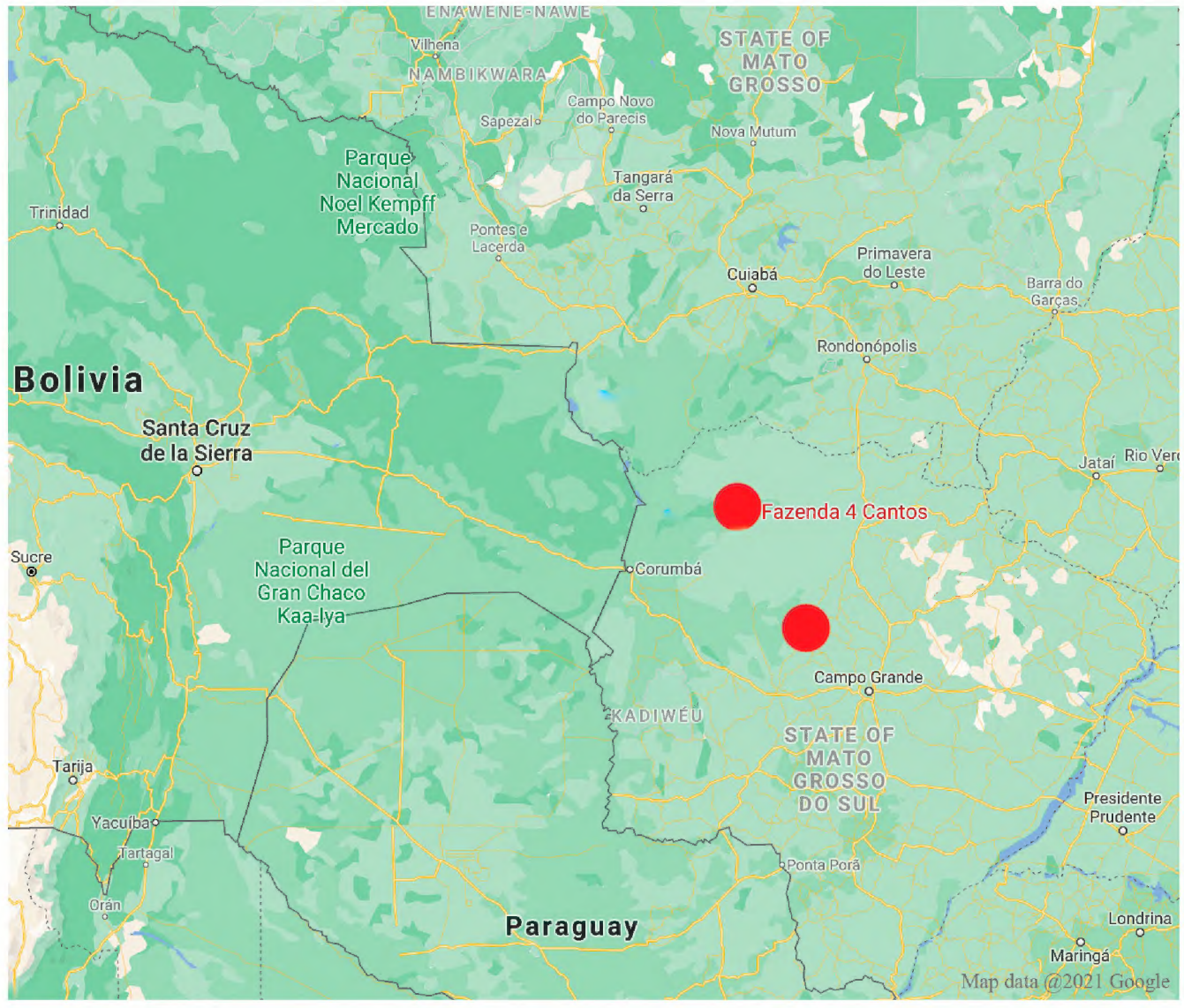

Figure 5. Location of type localities of Fazenda 4 Cantos and Fazenda Natureza, Mato Grosso do Sul, Brazil

Interocular width equals 6.0 transverse eye diameters. **Pronotum:** Surface with small, sparse, ocellate punctures. **Elytra:** Surface punctate-striate; punctures small, ocellate, separated by about 1 puncture diameter in each row, moderately dense in intervals. Sutural stria a row of small punctures. **Pygidium:** Prepygidium elongated, coarsely and longitudinally strigose, with long, dense, tawny setae. Pygidium short; surface shiny with large, dense, setigerous punctures, punctures becoming small in lateral angles; setae short, moderately dense, tawny. Surface convex in lateral view. **Legs:** Protibia tridentate, teeth subequally spaced. Protarsus enlarged; tarsomere 4 and base of tarsomere 5 densely strigulose ventrally; tarsomere 5 longitudinally carinulate on inner margin and with distinctive tooth beneath (Fig. 2); median claw stout, short, strongly bent (Fig. 2). Metatarsus shorter than metatibia. **Venter:** Prosternal process long, thick, columnar, apex flattened with raised, round "button" on all but slender, setose posterior margin. **Parameres:** Each side of shaft at about midpoint with small tooth and then shaft expanded to rounded apex (Fig. 4).

Allotype. Female. Length 16.7 mm; width 6.9 mm. As holotype except in the following respects: **Legs:** Protarsi simple, not enlarged.

Variation. Male (3 paratypes). Length 15.8–16.5 mm; width 6.8–7.3 mm. The paratypes do not differ from the holotype except in size, and the small tooth on the venter of tarsomere 5 is nearly obsolete in one specimen. Female

(3 paratypes). Length 15.5–16.5 mm; width 7.0–7.7 mm. The paratypes do not differ from the allotype.

Etymology. The specific epithet is an adjective and refers to the habitat type, the Pantanal, in which this species occurs.

Distribution. *Chalepides pantanalensis* is known only from Brazil's Pantanal Region (Fig. 5).

Locality records. 8 specimens examined.

Brazil (8) • MATO GROSSO DO SUL (8): Fazenda 4 Cantos, Fazenda Natureza (140 km NW Campo Grande).

Temporal distribution. May (3), November (5).

Natural history. Nothing is known of the life history of *C. pantanalensis* other than the specimens were presumably collected at lights as are other species of *Chalepides*.

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References

Endrődi S (1973) Einige Dynastinen-Arten (Coleoptera: Melolonthidae) aus Bolivien. Opuscula Zoologica 12: 57–61.

Endrödi S (1985) The Dynastinae of the World. Dr. W. Junk Publisher, Dordrecht, The Netherlands, 800 pp.

Joly LJ, Escalona HE (2002) Revisión del género *Chalepides* Casey, 1915 (Coleoptera: Scarabaeidae: Dynastinae: Cyclocephalini). Entomotropica 17: 37–90.

Martínez A (1977) Scarabaeidae. In: Hurlbert SH (Ed.) Biota Acuatica de Sudamerica Austral Siendo una Recopilación de Bibliografías Taxonómicas Referentes a la Fauna y Flora de Aguas Continentales del sur de Sudamérica. San Diego State University, San Diego, 244–245.

Ratcliffe BC, Cave RD (2015) The dynastine scarab beetles of the West Indies (Coleoptera: Scarabaeidae: Dynastinae). Bulletin of the University of Nebraska State Museum 28:1–346.

Silvera Guido A (1965) Natural enemies of weed plants. Final report. Unpublished report, Department Sanidad Vegetal, University de la Republic, Montevideo, Uruguay.

Wheeler QD, Platnick NI (2000) The phylogenetic species concept (*sensu* Wheeler and Platnick). In: Wheeler QD, Meier R (Eds) Species Concepts and Phylogenetic Theory: a Debate. Columbia University Press, New York, 55–69.

Valla, JJ, Cirino DR (1972) Biología floral del irupé, *Victoria cruziana* D'Orb. (Nymphaeaceae). Darwiniana 17: 477–500.